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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/342,729	06/29/1999	NOBUO NAKAMURA	0039-7260-2S	7005
22850	7590	11/19/2003		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER WISDAHL, ERIC D	
			ART UNIT 2615	PAPER NUMBER

DATE MAILED: 11/19/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/342,729

Applicant(s)

NAKAMURA ET AL.

Examiner

Eric D Wisdahl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1 – 6 and 11 have been considered but are moot in view of the new ground(s) of rejection.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3 – 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (U.S. Patent 6, 002, 123) in view of Egawa et al. (U.S. Patent 5, 572, 256).

Regarding Claim 1, Suzuki discloses:

- An array of unit cells arranged in rows and columns (Figure 1), each unit cell comprising:
  - Light receiving device (Figure 6 item 54);
  - Charge-accumulating section (Figure 6 item 62);
  - Transfer device (Figure 6 item 70);

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- Charge limiting device (Figure 6 item 116, in that it limits the charge in the charge accumulation region during a reset period);
  - Amplifying device (Figure 6 item 58);
- A plurality of **vertical signal lines** extending along the columns of the unit cells, respectively, each for **receiving** an electric data item corresponding to the electric **charge accumulated** in the charge-accumulating section of any unit cell of the associated column (Figure 1 item 22);

Suzuki fails to disclose

- Control circuit for controlling each of the unit cells to:
  - Cause the charge-limiting device to **limit** the charge,
    - The charge having been generated by the light receiving device during a **first period**, the charges having been transferred to the charge-accumulating section through the transfer device;
  - **Add** to the charge accumulated in the charge accumulating section the second charge,
    - The second charge having been generated by the light-receiving device during a **second period** following the first period, the charges having been transferred to the charge-accumulating section through the transfer device.

Egawa teaches:

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- Control circuit for controlling each of the unit cells to:
  - Cause the charge-limiting device to **limit** the charge (Column 8 lines 11 – 18, Figures 7a, 7b, 7c),
    - The charge having been generated by the light receiving device during a **first period**;
  - **Add** to the charge accumulated in the charge accumulating section the second charge (Column 8 lines 19 – 26, Figure 7d, 7e),
    - The second charge having been generated by the light-receiving device during a **second period** following the first period.

Such an arrangement would be advantageous in providing an improved motion-resolution without a degraded signal-to-noise ratio. Therefore, it would have been obvious to include the Control circuit for controlling each of the unit cells to: **Add** to the charge accumulated in the charge accumulating section the second charge, The second charge having been generated by the light-receiving device during a **second period** following the first period, the charges having been transferred to the charge-accumulating section through the transfer device so as to provide an improved motion-resolution.

Regarding Claim 3, Egawa teaches:

- Control circuit controls the unit cells such that:
  - During the **same vertical blanking** period in all cells (Figure 6 “BL”, Column 4 lines 43 – 52):

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- The charge-limiting device **limits** the charge to be accumulated in the charge-accumulating section; **and**
- The charge transferred to the charge-accumulating section is **added** to the charge accumulated in the charge-accumulating section.

Regarding Claim 4, Egawa teaches:

- First period is longer than the second period (Column 2 lines 33 – 35).

Regarding Claim 5, see examiners notes Claim 1.

Regarding Claim 6, see examiners notes Claim 1.

Regarding Claim 11, see examiners notes Claims 1 and 3.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (U.S. Patent 6, 002, 123) in view of Egawa et al. (U.S. Patent 5, 572, 256) in further view of Watanabe et al. (U.S. Patent 5, 512, 950).

Regarding Claim 2, Neither Suzuki nor Egawa specifically teach:

- Control Circuit controls:
  - Each unit cell of the same row is controlled such that the charge in the charge-accumulating section is **limited** by the charge-limiting device during a **horizontal blanking period**;

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- o Charge transferred to the charge accumulating section is **added** to the charge accumulated in the charge accumulating section during a **different horizontal blanking period**.

Watanabe teaches:

- Activities such as excessive charge removal, shutter pulses and other processes requiring control signals should be accomplished during the horizontal blanking period so as to eliminate a variation in the signal level within the image signal period (Column 5 lines 34 – 47, Column 6 line 61 – Column 7 line 5).

Such an arrangement of limiting the charges in the charge-accumulating section and adding second charges during a different blanking period would be advantageous in avoiding a signal variation within the image signal period. Therefore, it would have been obvious to include the Control Circuit controls each unit cell of the same row is controlled such that the charge in the charge-accumulating section is limited by the charge-limiting device during a horizontal blanking period, charge transferred to the charge accumulating section is added to the charge accumulated in the charge accumulating section during a different horizontal blanking period so as to limit the amount of signal variation within the image signal period.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Dierickx et al. U.S. Patent 6, 011, 251.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric D Wisdahl whose telephone number is (703) 305-4915. The examiner can normally be reached on 9:00 - 6:00 Mon-Thur every other Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-5399 for regular communications and (703) 308-5399 for After Final communications.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology center 2600 customer service office which can be reached at telephone number (703) 306-0377.

edw

A handwritten signature in black ink, appearing to read 'Andrew Christensen', with a long horizontal flourish extending to the right.

ANDREW CHRISTENSEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600